

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1.-103. (cancelled)

104. (thrice amended) A method for making an ultra high molecular weight polyethylene (UHMWPE) article, for subsequent processing to make an artificial joint, comprising:

(a) crosslinking a raw UHMWPE article slightly with low dose irradiation; and then

(b) heating said irradiated article to a compression deformable temperature between 50°C below the melting point of said article and said melting point;

(c) compression deforming the heated article; and then

(d) cooling the article while maintaining the deformed state.

105-108. (cancelled)

109. (amended) A method according to Claim 104, wherein pressure is applied during said heating step.

110. (amended) A method according to Claim 109, further comprising cooling said article and isothermally crystallizing said cooled article after said heating step.

111. (amended) A method according to Claim 110, wherein said isothermal crystallizing comprises heating said article to a temperature of from around 100°C to 130°C for a period of from 1 hour to 20 hours.

112.-113. (cancelled)

114. (thrice amended) A method for making an ultra high molecular weight polyethylene (UHMWPE) article which is suitable for subsequent processing to make an artificial joint, so as to improve the wear resistance properties of said article, comprising:

- (a) crosslinking a raw UHMWPE article slightly with low dose irradiation; and then
- (b) heating said irradiated article to a compression deformable temperature below the melting point of said article;
- (c) compression deforming the heated article; and then
- (d) cooling the article while maintaining the deformed state.

115.-118. (cancelled)

119. (amended) A method according to claim 114, wherein pressure is applied during said heating step.

120.-129. (cancelled)

130. (thrice amended) A method for making an ultra high molecular weight polyethylene (UHMWPE) article, for subsequent processing to make an artificial joint, comprising:

- (a) crosslinking a raw UHMWPE article slightly with low dose irradiation; and then
- (b) heating the irradiated article to a compression deformable temperature by heating at a temperature from its melting point minus 50°C to its melting point;
- (c) applying pressure to said irradiated article at a deformation temperature; then
- (d) heating said irradiated article to a temperature of from around 100°C to 130°C for a period of at least 1 hour; and then
- (e) cooling the heated article while maintaining the deformed state.

131.-138. (cancelled)

139. (thrice amended) A method of making a component for an artificial joint comprising ultra high molecular weight polyethylene (UHMWPE), comprising:

- (a) crosslinking a raw UHMWPE article slightly with low dose irradiation; and then
- (b) heating the irradiated article to a compression deformable temperature by heating at a temperature from its melting point minus 50°C to its melting point;
- (c) applying pressure to said irradiated article at a deformation temperature;
- (d) heating said irradiated article to a temperature of from around 100°C to 130°C for a period of at least 1 hour; and then
- (e) cooling the article while maintaining the deformed state; and then
- (f) processing said article to make said component.

140.-148. (cancelled)

149. A method according to claim 104, wherein the irradiation is gamma-irradiation.

150. A method according to claim 104, wherein the raw UHMWPE article comprises UHMWPE having a weight average molecular weight of 2 - 8 million.

151. A method according to claim 104, wherein the article comprises UHMWPE having 0.1 – 10 crosslinking points per 1 molecular chain.

152. A method according to claim 104, wherein the irradiation dose is from 0.01 to 5.0 MR.

153. A method according to claim 104, wherein the compression deformable temperature is from 100°C to 130°C.

154.-158. (cancelled)

159. A method according to 130, wherein the irradiation is gamma-irradiation.
160. A method according to claim 130, wherein the raw UHMWPE article comprises UHMWPE having a weight average molecular weight of 2 - 8 million.
161. A method according to claim 130, wherein the article comprises UHMWPE having 0.1 – 10 crosslinking points per 1 molecular chain.
162. A method according to claim 130, wherein the irradiation dose is from 0.01 to 5.0 MR.
163. A method according to claim 130, wherein the compression deformable temperature is from 100°C to 130°C.
164. A method according to 139, wherein the irradiation is gamma-irradiation.
165. A method according to claim 139, wherein the raw UHMWPE article comprises UHMWPE having a weight average molecular weight of 2 - 8 million.
166. A method according to claim 139, wherein the article comprises UHMWPE having 0.1 – 10 crosslinking points per 1 molecular chain.
167. A method according to claim 139, wherein the irradiation dose is from 0.01 to 5.0 MR.
168. A method according to claim 139, wherein the compression deformable temperature is from 100°C to 130°C.
169. A method for making an ultrahigh molecular weight polyethylene (UHMWPE) article, for a subsequent process to make an artificial joint, the method comprising:
(a) crosslinking a raw UHMWPE article slightly with low dose irradiation; and then

(b) heating said irradiated article to a compression deformable temperature between 50°C below the melting point of said article and said melting point;

(c) compression deforming the heated article; and then

(d) cooling the article while maintaining the deformed state.

170. A method according to claim 169, wherein the raw UHMWPE article comprises UHMWPE having a weight average molecular weight of 2 - 8 million.

171. A method according to claim 169, wherein the article comprises UHMWPE having 0.1 - 10 crosslinking points per 1 molecular chain.

172. A method according to claim 169, wherein the irradiation dose is from 0.01 to 5.0 MR.

173. A method according to claim 169, wherein the compression deformable temperature is from 100°C to 130°C.

174. A method according to claim 169, wherein the irradiation is α -irradiation.